Sept. 2, 1941. M. D. CANNON 2,254,266

HAIR CURLER

Filed April 4, 1939

Fig. 1.

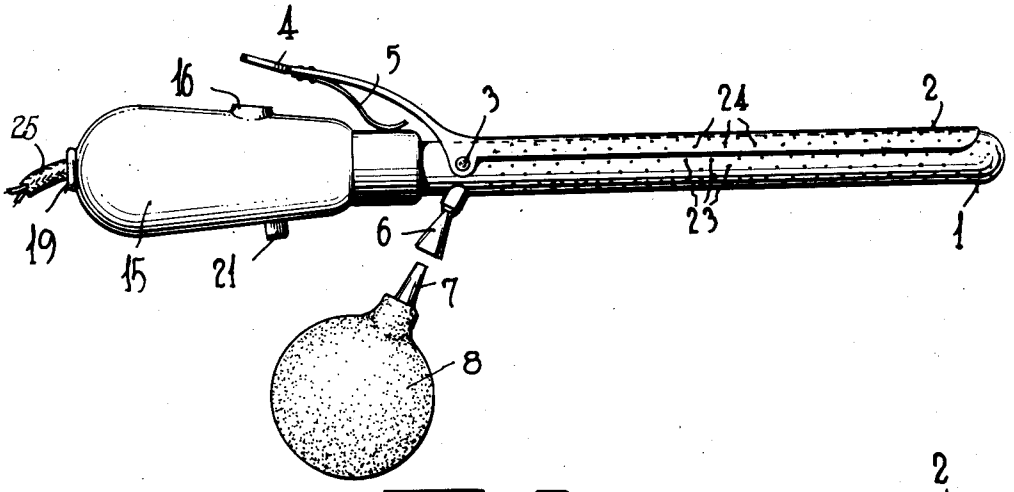


Fig. 2.

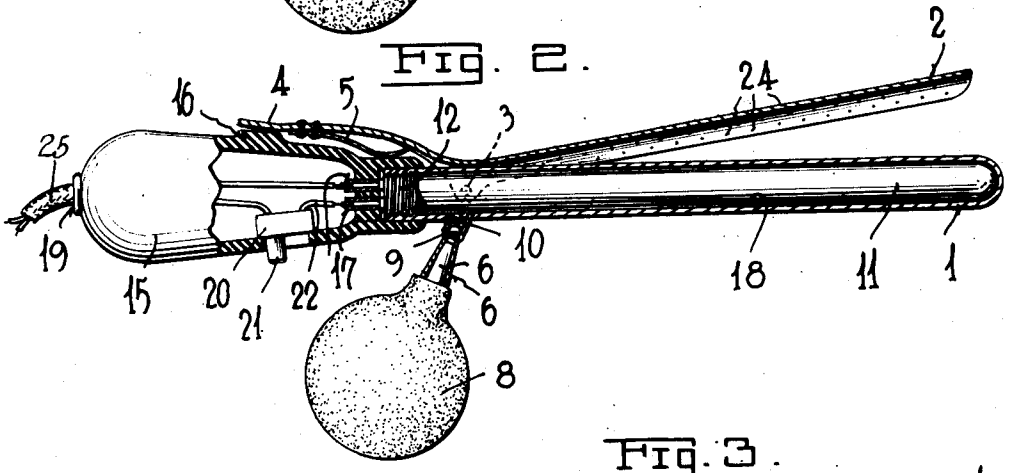


Fig. 3.

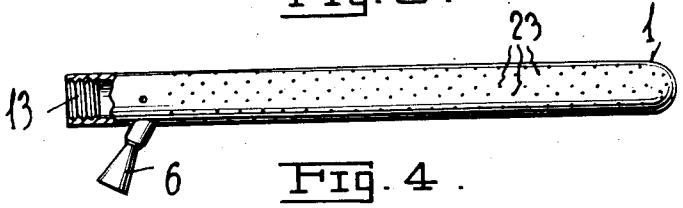


Fig. 4.



Inventor

MERLE D. CANNON

By F. Gerald Toye

Attorney

Patented Sept. 2, 1941 2,254,266

UNITED STATES PATENT OFFICE

2,254,266

HAIR CURLER

Merle D. Cannon, Waukomis, Okla.

Application April 4, 1939, Serial No. 266,005

1 Claim. (Cl. 132—37)

This invention relates to hair curling appliances.

It is generally understood that a curl or wave put in hair by a moist process is better and more lasting than can be obtained by using dry heat alone.

The primary object of this invention, therefore, is to provide an improved hair curling device, which is capable of generating steam or moist vapors during the curling operation, and which will liberate the steam or moist vapors in intimate contact with the hair.

Another object of the invention is to provide a hair curling device which can be used to subject the hair to the action of steam or moist vapors, through one or more openings from the interior of a hair engaging member and which is simple, efficient and adapted for home use.

A further object of the invention is to provide a device of this type which is compact, self-contained and portable in its entirety.

The invention is particularly adapted to use an electric heating element, such as the well known electric heating elements of the incased or sheathed type. Such elements are particularly adapted for the purpose of supplying the heat necessary to heat the hair and to generate steam or vapors since they are essentially moisture proof and hence the danger of electric shock is minimized.

It is, therefore, a further object of my invention to provide an electric hair curler of the above type which is essentially shock proof.

For a better understanding of this invention, together with further objects and advantages thereof, reference is had to the accompanying drawing in which Fig. 1 is a side elevation of a hair curler constructed in accordance with the invention; Fig. 2 is likewise a side elevation partially in section to show the internal arrangement of parts; Fig. 3 is a side elevation of the perforated sheath surrounding the heating element; Fig. 4 is a heating element.

The construction of the curling iron as illustrated in Figs. 1 and 2 shows a hollow sheath-like hair engaging member or arm 1. Mounted on member 1 is a cooperating hair engaging member or clip 2. The clip 2 is pivotally connected to member 1 at 3 and has a thumb operated extension 4. The member 1 and clip 2 cooperate in the same manner as a pair of tongs and are biased to a closed position by spring 5.

At one end of the member 1, there is a protuberance 6 which forms a passage into the interior of member 1. This protuberance 6 is flared at its outer end and adapted to receive the nipple portion 7 of a rubber bulb 8. Arranged within the protuberance 6 is a conventional check valve comprising a ball 9 and retaining spring 10. The detailed construction of member 1 is more clearly shown in Figure 3.

Mounted within the member 1 is a water-proof tubular shaped electric heating element 11 of the sheathed or encased type. The electric heating element 11 carries threads 12 at one end thereof which cooperate with corresponding threads 13 on the interior of the member 1. These cooperating threads 12 and 13 form a substantially water tight union between the corresponding ends of the heating element 11 and the member 1. If desired, suitable packing material may be added to this threaded joint.

The electric heating element 11 which is more clearly shown in Fig. 4 carries male terminal members 14 projecting from the end thereof adjacent to the threads 12. This electric heating element is of a conventional type and its internal construction will not be described in detail since this forms no part of the present invention.

A suitable hollow handle member 15 is attached to the member 1 by any suitable means, such as a friction fit. An abutment 16 is formed on said handle member opposite to the thumb operated extension 4 of the clip 2. This arrangement of parts is such that an operator may hold the hair curler by the handle and separate the members 1 and 2 by thumb pressure on the extension 4. The handle 15 is preferably formed of a material having a low thermal conductivity. At the end thereof which engages the member 1 by a friction fit, the handle 14 carries female contact by a friction fit, the handle 14 carries female contact members 17 which are so positioned within the handle 15 as to engage the male contact members 14 when the handle is attached to the member 1. Conductors 25 are led through an opening 19 in the end of the handle 15 and one of them is connected to one of the contact members 17 and the other is connected to one terminal of a switch 20 carried in the wall of the handle 15. The switch 20 may be of any conventional type having a projection 21 whereby it may be operated to close the circuit through conductor 22 to the other contact member 17.

The hollow member 1 has a large number of tiny holes 23 of capillary size forming passages from the interior to the exterior thereof. These holes are of such size that water will not readily pass therethrough except under a predetermined pressure differential. It will be understood that

the tiny holes 23 may be arranged in a variety of ways, and that one or more narrow slits might be utilized instead of the plurality of tiny holes. The space 18 between the member 1 of the electric heating element 11 is comparatively small, the clearance between these members being preferably of the order of 1 mm.

The clip 2 may also have a series of tiny holes 24 therein of similar size and distribution to the holes 23.

In using the improved curling iron of this invention, the hair is first wrapped or wound around the member 1 and then the current is turned on by operation of the switch 20. The electric heating element 11 is of such size and capacity that it heats very rapidly. When the heating element 11 has become hot a few drops of water are injected from the rubber bulb 8 through the protuberance 6 into the space 18. The water will tend to "ball up" when it hits the hot element 11 in the same manner as drops of water thrown on a hot stove. Due to the fact that the heating element 11 and the element 1 are closely spaced, the drops of water are prevented from "balling up" and are caused to spread through the space 18. As a result the water begins to immediately vaporize throughout the space 18, which results in the formation of steam, and the steam is forced through the holes 23 into intimate contact with the hair. The check valve carried in the protuberance 6 prevents the steam from going back into the bulb 8, and the fact that the holes 23 are of capillary size prevents the water from flowing outwardly therethrough until sufficient stream pressure has been built up within the space 18. Thus, if the heating element 11 has not attained a sufficiently high temperature at the time the water is injected from the bulb 8, the water will not flow out through the holes 23 until the heating element 11 gets hot enough to vaporize it and form stream.

As heretofore pointed out, the clip member 2 will be used to hold the hair in place once it is wound around the member 1. The holes 24 which are preferably provided in the clip 2 cooperate with the holes 23 in the member 1 to permit ready passage of the steam through the hair even at the points where the clip 2 is in contact therewith.

While I have described the operation of my improved curling iron in connection with a liquid such as water, it will be understood that I might also use any other suitable liquid, such as some of the well known hair setting fluids, in the bulb 8.

This improved hair curler, which is especially designed for home use, can also be used to advantage by beauty operators, for example, in testing the efficacy of various fluids on a particular type of hair. It can also be used to advantage over a dry hot curling iron by either a skilled or unskilled operator when it is desired to produce a relatively small number of curls as is sometimes necessary when the hair grows out or looses a part of its curl.

The expression "closely spaced" as used in the specification and claim is here defined as meaning a space of such a dimension that the liquid introduced between the heating element wall and the perforated wall cannot "ball up" when it reaches the heating element, due to surface tension.

While I have shown a particular embodiment of my invention, it will be understood, of course, that I do not wish to be limited thereto, since many modifications will suggest themselves, and I, therefore, contemplate by the appended claim to cover any such modifications as fall within the true spirit and scope of my invention.

What I claim is:

A device for treating hair with a vaporized liquid comprising a pair of hair engaging members, one of said members having a vapor generating chamber therein and being provided with a plurality of vapor outlets of capillary size through its surface, an electric heating element of the sheathed type arranged in said chamber, the spacing between the sheath of said heating element and the inner walls of said vapor generating chamber being uniformly smaller than the size normally assumed by a drop of said liquid balling up upon contact with the heated surface of said heating element, and means for injecting said liquid into said generating chamber.

MERLE D. CANNON.